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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,197	02/25/2004	Yuki Nakajima	023971-0383	3372
22428 7590 11/04/2009 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007				
EXAMINER				
ALI, MOHAMMAD M				
ART UNIT		PAPER NUMBER		
3744				
MAIL DATE		DELIVERY MODE		
11/04/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/785,197

**Applicant(s)**

NAKAJIMA ET AL.

**Examiner**

MOHAMMAD M. ALI

**Art Unit**

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 October 2009 and 25 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshi et al (EP 1049234 A2) in view of Staffia (5,732,769) and Ashenfelter (4,576,555). Takeshi et al disclose a drive unit 10 for an electric vehicle comprising a motor M, an inverter H, a speed reducer (see column 8, lines 37-40), a first refrigerant (water) receiving heat of at least one of the motor and the inverter and outputting the heat into the atmosphere through radiator R; second refrigerant (lubricating oil) receiving heat of at least one of motor and the speed reducer and outputting heat to the first refrigerant through a heat exchanger C; the heat exchanger C transferring the heat of second refrigerant to the first refrigerant. See Fig.1, column 6, line 44 to column 9,

line 2. Also see Fig. 5, 6, 11, 12 and 14; differential drive pinion gear 45, differential ring gear 52 and differential D, see Fig. 3 and Para [0041]; the inverter U as shown in Fig. 5, mount on the part of the drive unit case 10 and integrated with drive unit case 10, see Para [0047] and lines 18-23. Takeshi et al disclose the invention substantially as claimed as stated above except another cooling passage being disposed inside of the cooling passage through which the second refrigerant is passed and the heat exchanger being disposed at a bottom of the drive unit. Staffia teaches a cooling passage between external pipe 1 and internal pipe 2 through which (see arrow 5) a second refrigerant (lubricating oil) is passed and the another refrigerant (cooling water) is passed through the internal pipe 4 disposed inside the second refrigerant passage as shown by arrow 7 in a vehicle oil cooling system for the purpose of cooling lubricating oil and Ashenfelter teaches the use of a heat exchanging pipe 54 with cool refrigerant exchanging heat with the lube oil in the sump 70 both disposed under a drive unit 20 for the purpose of cooling lubricating oil. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the drive unit of Takeshi et al., in view of Staffia and Ashenfelter such that the passage of other refrigerant could be provided through the passage of a second refrigerant and the heat exchanger being disposed at the bottom of the drive unit in order to exchange heat with the lubricating oil to cool it at a place where it gathers in a sump of a drive unit. Regarding claims 2-7, 9-11, 14-15 and 18, the specific configuration of inverter and speed reducer; it is an obvious to have a specific configuration of the above objects since there is no criticality or unexpected result from it. Regarding the pan, the

Examiner considers the oil sump 70 as shown in Fig. 1 of Ashenfelter is the pan of second refrigerant and the lower inner surface of water passage 54 as the pan of the first refrigerant. Regarding first refrigerant includes cooling water as amended part of claim 1, Takeshi et al also disclose first refrigerant as cooling water. (See column 6, lines 51-53. The cooling water circuit (F) of Takeshi et al as shown in Fig. 6 is just below the electric motor (M) and thus the cooling water circuit (F) directly cools electric motor (M).

### ***Response to Arguments***

Applicant's arguments filed 09/25/09 have been fully considered but they are not persuasive. The Applicants argue that Takeshi teaches away from a system where its second coolant of water receives heat of the motor, while its first coolant of oil receives heat of the speed reducer and outputs the heat to the first refrigerant. In particular, Takeshi discloses in paragraph [0023]:

Because the system is such that the second coolant does not directly cool the electric motor but simultaneously cools the inverter the first coolant which cools the motor by circulation, the heat from the electric motor is reduced with respect to direct heat transfer by heat exchange to the second coolant through the first coolant, and thus it is possible to prevent the temperature rise of the second coolant from rising about the heat resistant temperature of the inverter.

Because Takeshi touts the benefits of not having the second coolant directly cool the

motor, Takeshi teaches away from a system where its second coolant of water receives heat of

the motor, and it would not have been obvious to one of ordinary skill in the art to modify Takeshi system such that its second coolant of water receives heat of its motor. The Examiner disagrees. Takeshi et al also disclose first refrigerant as cooling water. (See column 6, lines 51-53. The cooling water circuit (F) of Takeshi et al as shown in Fig. 6 is just below the electric motor (M) and thus the cooling water circuit (F) directly cools electric motor (M). Apart from that as shown in Fig. 1, Takeshi et al cools the lubricating oil (L) by cooling water (F) and thus cools the electric motor (M). Therefore, Takeshi et al teaches away from a system where its second coolant of water receives heat of the motor, and it would not have been obvious to one of ordinary skill in the art to modify Takeshi system such that its second coolant of water receives heat of its motor is not correct. Apart from that cooling water cooling the compressor or compressor motor is very old and an ordinary skill of art knows now the cooling water directly cools the compressor of motor. For evidentiary reference, see column 4, lines 26-31 (Figs. 2-3) of US Patent 4,125,345 to Yoshinaga et al. See column 1, lines 67-70 of US Patent 3,548,612 to Mamoru Mitsubayashi et al and Para [0038] of US 20020066552 to Komoda. Therefore, rejections are ok.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MOHAMMAD M. ALI whose telephone number is (571)272-4806. The examiner can normally be reached on maxiflex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4808. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mohammad M Ali/  
Primary Examiner, Art Unit 3744